

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicants: Yusheng Zhao et al.

Docket No.: S-102,389

Serial No.:

Examiner:

Filed :

Art Unit:

For : BULK SUPERHARD B-C-N  
NANOCOMPOSITE COMPACT  
AND METHOD FOR PREPARING THEREOF

Commissioner for Patents  
Washington, DC 20231

**INFORMATION DISCLOSURE STATEMENT**  
**UNDER 37 CFR 1.56, 1.97, AND 1.98**

Sir:

The documents listed below, copies attached, are submitted in compliance with the duty of disclosure defined in 37 CFR 1.56.

1. E. Knittle, R. B. Kaner, R. Jeanloz, and M. L. Cohen, "High-Pressure Synthesis, Characterization, and Equation of State of Cubic C-BN Solid Solutions," Physical Review B, Vol. 51, No. 18, pp. 149-156, May 1, 1995.
2. S. Veprek, "Nanostructured Superhard Materials," Chapter 4, Handbook of Ceramic Hard Materials, Ralf Riedel (Editor), pp. 104-139, 2000.
3. Tamikuni Komatsu, Miho Samedima, TERNYUKI Awano, Yozo Kakadate, and Syuzo Fujiware, "Creation of Superhard B-C-N Heterodiamond Using an Advanced Shock Wave Compression Technology," Journal of Materials Processing Technology, Vol. 85, pp. 69-73, 1999.

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**CERTIFICATE OF MAILING/TRANSMISSION (37 CFR 1.8(a))**

I hereby certify that this correspondence is, on the date shown below, being:

**MAILING**

☒ deposited with the United States Postal Service with sufficient postage as first class mail in an envelope addressed to the: Commissioner for Patents, Washington, DC 20231.

**FACSIMILE**

☐ transmitted by facsimile to the United States Patent and Trademark Office.

Date April 14, 2004

Samuel L. Borkowsky  
Signature  
Samuel L. Borkowsky  
(type or print name of person certifying)

4. Wataru Utsumi, S. Nakano, K. Kimoto, T. Okada, M. Isshiki, T. Taniguchi, K. Funakoshi, M. Akaishi, and O. Shimomura, "In Situ X-Ray and TEM Observations on the Phase Transitions of BC<sub>2</sub>N Under Static High Pressures," Proceedings of AIRAPPT-18, Beijing, p. 186, 2001.
5. Jianyu Huang, Yuntian T. Zhu, and Hirotaro Mori, "Structure and Phase Characteristics of Amorphous Boron-Carbon-Nitrogen Under High Pressure and High Temperature," J. Mater. Res., Vol. 16, No. 4, pp. 1178-1184, April 2001.
6. Vladimir L. Solozhenko, Denis Andrault, Guillaume Fiquet, Mohamed Mezouar, and David C. Rubie, "Synthesis of Superhard Cubic BC<sub>2</sub>N," Applied Physics Letters, Vol. 78, No. 10, pp. 1385-1387, March 5, 2001.
7. Takashi Taniguchi, Minoru Akaishi, and Shinobu Yamaoka, "Sintering of Cubic Boron Nitride Without Additives at 7.7 GPa and Above 2000 °C," J. Mater Res., Vol. 14, No. 1, pp. 162-169, January 1999.
8. Roger K. Wedlake et al., "Hard Materials of BCN in Tetrahedral Form and Method of Making It," U. S. Patent 4,187,083, issued February 5, 1980.

This Information Disclosure Statement is not to be construed as a representation that a search has been made or that additional matter material to the examination of this application does not exist. Applicant does not believe that any of these citations constitutes prior art under 35 U.S.C. 102.

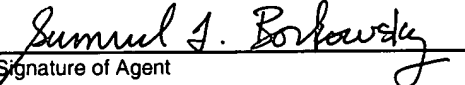
It is requested that the above citations be made of record in the prosecution of this application.

Respectfully submitted,

Date: April 14, 2004

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Signature of Agent  
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Form PTO-1449  
(Modified)U.S. Department of Commerce  
Patent and Trademark Office**INFORMATION DISCLOSURE  
STATEMENT BY APPLICANT**

37 CFR 1.98(b)

Attorney Docket No.  
S-102,389

Serial No.

Applicant(s) Yusheng Zhao et al.

Filing Date

Group

**U.S. PATENTS DOCUMENTS**

EXAMINER INITIAL	PATENT NUMBER								ISSUE DATE	PATENTEE	CLASS	SUB CLASS	FILING DATE
		4	1	8	7	0	8	3	02/05/80	Roger J. Wedlake et al.	51	307	02/16/78

**FOREIGN PATENT DOCUMENTS**

EXAMINER INITIAL	PATENT NUMBER								ISSUE DATE	COUNTRY	CLASS	SUB CLASS	Translation YES NO	

**OTHER DOCUMENTS** (Including Author, Title, Date, Place of Publication)

	E. Knittle, R. B. Kaner, R. Jeanloz, and M. L. Cohen, "High-Pressure Synthesis, Characterization, and Equation of State of Cubic C-BN Solid Solutions," Physical Review B, Vol. 51, No. 18, pp. 149-156, May 1, 1995
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	Wataru Utsumi, S. Nakano, K. Kimoto, T. Okada, M. Isshiki, T. Taniguchi, K. Funakoshi, M. Akaishi, and O. Shimomura, "In Situ X-Ray and TEM Observations on the Phase Transitions of BC <sub>2</sub> N Under Static High Pressures," Proceedings of AIRAPPT-18, Beijing, p. 186, 2001
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	Takashi Taniguchi, Minoru Akaishi, and Shinobu Yamaoka, "Sintering of Cubic Boron Nitride Without Additives at 7.7 GPa and Above 2000 °C," J. Mater. Res., Vol. 14, No. 1, pp. 162-169, January 1999

EXAMINER:

DATE CONSIDERED:

\*EXAMINER: Initial citation considered. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.